HUMAN RESOURCES FOR TREATING NEW CANCER CASES IN THAILAND

Executive Summary

The purpose of this report is to describe the human resources needed in Thailand to treat new cancer patients.

The population of Thailand is approximately 67.39 million (33.15 million men and 34.23 million women) and the estimated number of new cancer cases in Thailand for the year 2008, based on Globocan data for Thailand as a whole (http://globocan.iarc.fr/) was 112666 (50407 in men and 62259 in women) (Table A). The five most common cancers in Thailand are (1) liver, (2) gynecological (cervix uteri, corpus uteri and ovary), (3) lung, (4) breast and (5) head and neck (lip and oral cavity, nasopharynx, other pharynx, larynx and thyroid).

Table A: The ten most frequently occurring cancers in Thailand for men and women based on 2008 Globocan data (http://globocan.iarc.fr/).

Cancer	Both	Rank	Men	Rank	Women	Rank
All cancers excl. non-melanoma skin cancer	112666		50407		62259	
Liver	22092	1	14264	1	7828	3
Gynecological	14458	2			14458	1
Lung	14129	3	9338	2	4791	6
Breast	12566	4			12566	2
Head and Neck	12026	5	5850	3	6176	4
Colorectal	9947	6	4541	6	5406	5
Hematological	8172	7	4564	5	3608	7
Urological	5907	8	4779	4	1128	9
Stomach	2653	9	1442	7	1211	8
Brain, nervous system	1635	10	749	9	886	10
Gallbladder	1581	11	709	10	872	11
Esophagus	1446	12	1120	8	326	13
Pancreas	1006	13	577	11	429	12
Melanoma of skin	340	14	126	12	214	14

Newly diagnosed cancer patients need pathology, surgery, chemotherapy and/or radiation therapy. The number of oncologists needed is based, therefore, on the number of patients requiring pathology, surgery, chemotherapy and radiation therapy (Table B). This number is estimated from the percentage of patients requiring surgery, chemotherapy and/or radiation therapy for the top ten cancers in both men and women. For developing countries the International Atomic Energy Agency (IAEA) recommends training radiation/clinical oncologists who can prescribe both radiation and chemotherapy for the common solid cancers, instead of separate medical and radiation oncologists. Hematological malignancies are treated primarily by hematologist-oncologists. The number of specialists needed is based upon the number of cancer patients but each city, in order to ensure coverage if one person leaves or goes on vacation, must have at least 2 surgical oncologists, 2 radiation/clinical oncologists, 2 hematologist oncologists, etc.

Table B: Number of oncologists needed for Thailand's two most populous regions based on 2010 population estimates (http://citypopulation.de/) and 2008 Globocan data for new cancer cases (http://globocan.iarc.fr/).

	New Cancer Cases	Hematologist Oncologists	Surgical Oncologists	Radiation / Clinical Oncologists	Urologic Oncologists	Gynecologic Oncologists	Neuro-Oncologists	Pathologists
Northeastern	31447	5	34	158	4	9	2	63
Bangkok and Vicinities	24353	4	26	122	3	7	2†	49

†At least 2 are needed in each city.

In addition to oncologists, support staff such as onco-pharmacists, pharmacy technicians, oncology nurses and palliative care specialists is also needed. Many cancer patients require hospitalization for diagnosis, treatment and/or complications, therefore an adequate number of oncology beds will be needed. The number of oncology nurses, onco-pharmacists and pharmacy technicians needed is based upon the number of beds occupied daily by cancer patients while the number of palliative care specialists is based on the number of new cancer cases per year (Table C). The oncology nursing staff for each 24-bed oncology unit (operating 24 hours a day, 7 days a week) comprises of one head nurse and a nurse specialist as well as 13 nurses working 8 hour shifts, 5 days per week.

Table C: Number of oncology Units, oncology nursing and pharmacy staff needed for Thailand's two most populous regions based on 2010 population estimates (http://citypopulation.de/) and 2008 Globocan data for new cancer cases (http://globocan.iarc.fr/).

	New Cancer Cases	Oncology Beds/Day	24 bed Oncology Wards	Onco-Pharmacists	Pharmacy Technicians	Palliative Care Specialists	Oncology Ward Nurses
Northeastern	**31447**	577	25	100	150	63	375
Bangkok and Vicinities	**24353**	447	19	76	114	49	285

Since many cancer patients require radiotherapy, appropriately equipped facilities will be needed along with radiation oncology staff (Tables D and E). Radiation oncology staff includes radiation therapy technicians, medical physicists, Linac engineers and radiation oncology nurses in addition to radiation/clinical oncologists. The minimum radiation therapy equipment requirements are at least one of each: Linac, brachytherapy unit, CT simulator, treatment planning computer and dosimetry/quality assurance package.

Table D: Radiation Therapy Staff needed for Thailand's two most populous regions based on 2010 population estimates (http://citypopulation.de/) and 2008 Globocan data for new cancer cases (http://globocan.iarc.fr/).

	New Cancer Cases	Radiation / Clinical Oncologists	Radiation Therapy Technicians	Medical Physicists	Linac Engineers	Radiation Oncology Nurses
Northeastern	**31447**	158	216	72	18	72
Bangkok and Vicinities	**24353**	122	167	56	14	56

Table E: Radiation Therapy Equipment needed for Thailand's two most populous regions based on 2010 population estimates (http://citypopulation.de/) and 2008 Globocan data for new cancer cases (http://globocan.iarc.fr/).

	New Cancer Cases	Linac / Co 60 Megavolt Unit	Brachytherapy Units	CT Simulators	Treatment Planning Computers	Dosimetry /QA Packages
Northeastern	**31447**	36	18	18	18	18
Bangkok and Vicinities	**24353**	28	14	14	14	14

NOTE: Guidelines from the IAEA of the United Nations were used to calculate the radiation therapy equipment and staff needed in the setting of a developing Thailand. Guidelines from the Oncology Nursing Society were used to calculate the number of nurses needed. Several other specialty societies were also requested to provide guidelines but in most cases there were none, therefore colleagues active in those fields were consulted for estimating the number of staff needed.